

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica St. Louis

13715 Rider Trail North

Earth City, MO 63045

Tel: (314)298-8566

TestAmerica Job ID: 160-5553-1

Client Project/Site: West Lake Landfill

For:

Engineering Management Support, Inc.

7220 W. Jefferson AVE

Suite 406

Lakewood, Colorado 80235

Attn: Mr. Paul Rosasco

*Rhonda Ridenhower*

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Authorized for release by:

2/28/2014 3:29:51 PM

Rhonda Ridenhower, Manager of Project Management

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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## Case Narrative

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

**Job ID: 160-5553-1**

**Laboratory: TestAmerica St. Louis**

Narrative

### CASE NARRATIVE

**Client: Engineering Management Support, Inc.**

**Project: West Lake Landfill**

**Report Number: 160-5553-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

#### RECEIPT

The samples were received on 02/14/2014; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.1 C.

#### VOLATILE ORGANIC COMPOUNDS (GC MS)

Samples PZ-212-SD (160-5553-1) and TRIP BLANK (160-5553-2) were analyzed for volatile organic compounds (GC MS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 02/16/2014.

No difficulties were encountered during the VOCs analysis.

All quality control parameters were within the acceptance limits.

#### METALS (ICP)-Total and Dissolved

Sample PZ-212-SD (160-5553-1) was analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 02/18/2014 and analyzed on 02/21/2014.

## Case Narrative

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

### Job ID: 160-5553-1 (Continued)

#### Laboratory: TestAmerica St. Louis (Continued)

Prep batch 105783, analytical batch 106962

The following sample(s) was diluted to bring the concentration of target analytes within the calibration range: (160-5553-1 SD), PZ-212-SD (160-5553-1), PZ-212-SD (160-5553-1 MS), PZ-212-SD (160-5553-1 MSD). Elevated reporting limits (RLs) are provided.

Due to the high concentration of calcium and sodium, the matrix spike / matrix spike duplicate (MS/MSD) could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria. PZ-212-SD (160-5553-1 MS), PZ-212-SD (160-5553-1 MSD)

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for potassium were outside control limits. Sample matrix interference are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. PZ-212-SD (160-5553-1 MS), PZ-212-SD (160-5553-1 MSD)

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for potassium were outside control limits. Sample matrix interference are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. PZ-212-SD (160-5553-1 MS), PZ-212-SD (160-5553-1 MSD)

Closing CCV was outside the upper QC limit for sodium indicating a potential high bias. The only samples associated with this CCV were batch QC samples (MS\MSD) fortified with a known amount and were within their acceptable QC limits indicating no adverse affect. Original results will be reported. (CCV 160-106962/61)

LCR was outside the upper QC criteria for potassium and sodium. CCV at 50ppm was within 10% of its true value for these elements. No results >50ppm for potassium and sodium will be reported from this run. (LCR 160-106962/10)

No other difficulties were encountered during the metals analysis.

All other quality control parameters were within the acceptance limits.

#### **TOTAL MERCURY-Total and Dissolved**

Sample PZ-212-SD (160-5553-1) was analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 02/25/2014.

The matrix spike duplicate (MSD) recovery was outside control limits. The RPD was within acceptable limits, indicating matrix interference. The associated laboratory control sample (LCS) recovery met acceptance criteria. PZ-212-SD (160-5553-1 MS), PZ-212-SD (160-5553-1 MSD)

No other difficulties were encountered during the mercury analysis.

All other quality control parameters were within the acceptance limits.

#### **ANIONS**

Sample PZ-212-SD (160-5553-1) was analyzed for anions in accordance with EPA Method 300.0. The samples were analyzed on 02/14/2014, 02/20/2014 and 02/24/2014.

The following sample was diluted to bring the concentration of the target analyte Sulfate within the calibration range: PZ-212-SD (160-5553-1), PZ-212-SD (160-5553-1 DU), PZ-212-SD (160-5553-1 MS). Elevated reporting limits (RLs) are provided.

The following sample was diluted to bring the concentration of the target analyte Chloride within the calibration range: PZ-212-SD (160-5553-1). Elevated reporting limits (RLs) are provided.

No other difficulties were encountered during the anions analysis.

All other quality control parameters were within the acceptance limits.

#### **ALKALINITY**

## Case Narrative

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

### Job ID: 160-5553-1 (Continued)

#### Laboratory: TestAmerica St. Louis (Continued)

Sample PZ-212-SD (160-5553-1) was analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 02/24/2014.

No difficulties were encountered during the alkalinity analysis.

All quality control parameters were within the acceptance limits.

## **Chain of Custody Record**

*Temperature on Receipt -*

*Drinking Water? Yes*  *No*

THE LEADER IN ENVIRONMENTAL TESTING

JAL-4124 (1007)

*Conditions of Receipt*

*Sample I.D. No. and Description*  
*(Containers for each sample may be combined on*

P2-212-SD	Trip Block	2 14 14	0855	X	2 2 6	X X X X X X	X X X X X X	*Ms/MsD Collected	④ P2-212-SD
		2 14 14		<u> </u>	X				

the first time in the history of the world, the people of the United States have been called upon to decide whether they will submit to the law of force, or the law of the Constitution.

ANSWER

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THE JOURNAL OF CLIMATE

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卷之三

在這裏，我們將會遇到一個問題：如果我想要在一個已經存在的資料庫中新增一個欄位，該如何進行？這就是我們要談的「資料庫修改」。在 MySQL 中，我們可以使用 `ALTER TABLE` 這個語句來修改現有資料庫的結構。語句的格式如下：

*(A fee may be assessed if samples are retained)*

24 Hours  48 Hours  7 Days  14 Days  Other \_\_\_\_\_

*i. Received by* **Lane** *time* **1807** *time* **1807** *time* **1807** *time* **1807**

2. Relinquished By \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_ Received By \_\_\_\_\_ Date \_\_\_\_\_ Time

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*Comments*

**DISTRIBUTION:** **WHITE** - Returned to Client with Report. **CANARY** - Shown with the Sample. **PINK** - Field Canv.

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Date 11/11/11

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## Login Sample Receipt Checklist

Client: Engineering Management Support, Inc.

Job Number: 160-5553-1

**Login Number:** 5553

**List Source:** TestAmerica St. Louis

**List Number:** 1

**Creator:** Daniels, Brian J

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	N/A	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: Engineering Management Support, Inc.

Job Number: 160-5553-1

**Login Number:** 5553

**List Source:** TestAmerica Savannah

**List Number:** 1

**List Creation:** 02/18/14 12:11 PM

**Creator:** Conner, Keaton

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Definitions/Glossary

Client: Engineering Management Support, Inc.

Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

### Qualifiers

#### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
^	Instrument related QC exceeds the control limits
B	Compound was found in the blank and sample.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD Recovery exceeds the control limits
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.

#### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
D	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

## Method Summary

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL SL
6010C	Metals (ICP)	SW846	TAL SL
7470A	Mercury (CVAA)	SW846	TAL SL
300.0	Anions, Ion Chromatography	MCAWW	TAL SL
310.1	Alkalinity	MCAWW	TAL SAV

### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

## Sample Summary

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-5553-1	PZ-212-SD	Water	02/14/14 08:55	02/14/14 09:45
160-5553-2	TRIP BLANK	Water	02/14/14 00:00	02/14/14 09:45

1

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TestAmerica St. Louis

# Client Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

**Client Sample ID: PZ-212-SD**

Date Collected: 02/14/14 08:55

Date Received: 02/14/14 09:45

**Lab Sample ID: 160-5553-1**

Matrix: Water

**Method: 8260C - Volatile Organic Compounds by GC/MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		20	6.7	ug/L			02/16/14 21:14	1
Benzene	ND		5.0	0.25	ug/L			02/16/14 21:14	1
Bromodichloromethane	ND		5.0	0.25	ug/L			02/16/14 21:14	1
Bromoform	ND		5.0	0.37	ug/L			02/16/14 21:14	1
Bromomethane	ND		10	0.40	ug/L			02/16/14 21:14	1
2-Butanone (MEK)	ND		20	0.39	ug/L			02/16/14 21:14	1
Carbon disulfide	ND		5.0	0.37	ug/L			02/16/14 21:14	1
Carbon tetrachloride	ND		5.0	0.36	ug/L			02/16/14 21:14	1
Chlorobenzene	ND		5.0	0.38	ug/L			02/16/14 21:14	1
Chloroethane	ND		10	0.38	ug/L			02/16/14 21:14	1
Chloroform	ND		5.0	0.15	ug/L			02/16/14 21:14	1
Chloromethane	ND		10	0.55	ug/L			02/16/14 21:14	1
cis-1,2-Dichloroethene	ND		5.0	0.16	ug/L			02/16/14 21:14	1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/L			02/16/14 21:14	1
Cyclohexane	ND		10	0.36	ug/L			02/16/14 21:14	1
Dibromochloromethane	ND		5.0	0.33	ug/L			02/16/14 21:14	1
1,2-Dibromo-3-Chloropropane	ND		10	1.2	ug/L			02/16/14 21:14	1
1,2-Dibromoethane (EDB)	ND		5.0	0.44	ug/L			02/16/14 21:14	1
1,2-Dichlorobenzene	ND		5.0	0.28	ug/L			02/16/14 21:14	1
1,3-Dichlorobenzene	ND		5.0	0.23	ug/L			02/16/14 21:14	1
1,4-Dichlorobenzene	ND		5.0	0.35	ug/L			02/16/14 21:14	1
Dichlorodifluoromethane	ND		10	0.45	ug/L			02/16/14 21:14	1
1,1-Dichloroethane	ND		5.0	0.39	ug/L			02/16/14 21:14	1
1,2-Dichloroethane	ND		5.0	0.37	ug/L			02/16/14 21:14	1
1,1-Dichloroethene	ND		5.0	0.37	ug/L			02/16/14 21:14	1
1,2-Dichloropropene	ND		5.0	0.32	ug/L			02/16/14 21:14	1
Ethylbenzene	ND		5.0	0.30	ug/L			02/16/14 21:14	1
2-Hexanone	ND		20	0.59	ug/L			02/16/14 21:14	1
Isopropylbenzene	ND		5.0	0.26	ug/L			02/16/14 21:14	1
Methyl acetate	ND		25	2.3	ug/L			02/16/14 21:14	1
Methylcyclohexane	ND		10	0.26	ug/L			02/16/14 21:14	1
Methylene Chloride	ND		5.0	1.7	ug/L			02/16/14 21:14	1
4-Methyl-2-pentanone (MIBK)	ND		20	0.33	ug/L			02/16/14 21:14	1
Methyl tert-butyl ether	ND		5.0	0.40	ug/L			02/16/14 21:14	1
m-Xylene & p-Xylene	ND		5.0	0.57	ug/L			02/16/14 21:14	1
o-Xylene	ND		5.0	0.32	ug/L			02/16/14 21:14	1
Styrene	ND		5.0	0.35	ug/L			02/16/14 21:14	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.43	ug/L			02/16/14 21:14	1
Tetrachloroethene	ND		5.0	0.28	ug/L			02/16/14 21:14	1
Toluene	ND		5.0	1.0	ug/L			02/16/14 21:14	1
trans-1,2-Dichloroethene	ND		5.0	0.18	ug/L			02/16/14 21:14	1
trans-1,3-Dichloropropene	ND		5.0	0.35	ug/L			02/16/14 21:14	1
1,2,4-Trichlorobenzene	ND		5.0	0.55	ug/L			02/16/14 21:14	1
1,1,1-Trichloroethane	ND		5.0	0.29	ug/L			02/16/14 21:14	1
1,1,2-Trichloroethane	ND		5.0	0.57	ug/L			02/16/14 21:14	1
Trichloroethene	ND		5.0	0.29	ug/L			02/16/14 21:14	1
Trichlorofluoromethane	ND		5.0	0.22	ug/L			02/16/14 21:14	1
Vinyl chloride	ND		5.0	0.43	ug/L			02/16/14 21:14	1
Xylenes, Total	ND		10	0.85	ug/L			02/16/14 21:14	1

TestAmerica St. Louis

# Client Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

**Client Sample ID: PZ-212-SD**

**Lab Sample ID: 160-5553-1**

**Matrix: Water**

Date Collected: 02/14/14 08:55

Date Received: 02/14/14 09:45

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		75 - 123		02/16/14 21:14	1
Dibromofluoromethane (Surr)	104		80 - 120		02/16/14 21:14	1
1,2-Dichloroethane-d4 (Surr)	108		78 - 127		02/16/14 21:14	1
Toluene-d8 (Surr)	101		80 - 120		02/16/14 21:14	1

## Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		1000	400	ug/L		02/18/14 12:31	02/21/14 17:25	5
Antimony	ND		50	20	ug/L		02/18/14 12:31	02/21/14 17:25	5
Arsenic	ND		50	9.9	ug/L		02/18/14 12:31	02/21/14 17:25	5
<b>Barium</b>	<b>130 J</b>		250	20	ug/L		02/18/14 12:31	02/21/14 17:25	5
Beryllium	ND		25	3.1	ug/L		02/18/14 12:31	02/21/14 17:25	5
<b>Boron</b>	<b>86 J</b>		250	54	ug/L		02/18/14 12:31	02/21/14 17:25	5
Cadmium	ND		25	4.6	ug/L		02/18/14 12:31	02/21/14 17:25	5
<b>Calcium</b>	<b>80000</b>		5000	530	ug/L		02/18/14 12:31	02/21/14 17:25	5
Chromium	ND		50	16	ug/L		02/18/14 12:31	02/21/14 17:25	5
Cobalt	ND		250	25	ug/L		02/18/14 12:31	02/21/14 17:25	5
Copper	ND		130	23	ug/L		02/18/14 12:31	02/21/14 17:25	5
Iron	ND		500	140	ug/L		02/18/14 12:31	02/21/14 17:25	5
Lead	ND		50	7.5	ug/L		02/18/14 12:31	02/21/14 17:25	5
<b>Magnesium</b>	<b>33000</b>		5000	660	ug/L		02/18/14 12:31	02/21/14 17:25	5
<b>Manganese</b>	<b>320</b>		75	17	ug/L		02/18/14 12:31	02/21/14 17:25	5
Nickel	ND		200	67	ug/L		02/18/14 12:31	02/21/14 17:25	5
Potassium	ND ^		25000	8300	ug/L		02/18/14 12:31	02/21/14 17:25	5
Selenium	ND		75	13	ug/L		02/18/14 12:31	02/21/14 17:25	5
Silver	ND		50	30	ug/L		02/18/14 12:31	02/21/14 17:25	5
<b>Sodium</b>	<b>110000 ^</b>		5000	1600	ug/L		02/18/14 12:31	02/21/14 17:25	5
<b>Strontium</b>	<b>410</b>		25	2.7	ug/L		02/18/14 12:31	02/21/14 17:25	5
Thallium	ND		100	20	ug/L		02/18/14 12:31	02/21/14 17:25	5
Vanadium	ND		250	20	ug/L		02/18/14 12:31	02/21/14 17:25	5
<b>Zinc</b>	<b>51 J B</b>		100	26	ug/L		02/18/14 12:31	02/21/14 17:25	5

## Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		1000	400	ug/L		02/18/14 12:31	02/21/14 17:40	5
Antimony	ND		50	20	ug/L		02/18/14 12:31	02/21/14 17:40	5
Arsenic	ND		50	9.9	ug/L		02/18/14 12:31	02/21/14 17:40	5
<b>Barium</b>	<b>140 J</b>		250	20	ug/L		02/18/14 12:31	02/21/14 17:40	5
Beryllium	ND		25	3.1	ug/L		02/18/14 12:31	02/21/14 17:40	5
<b>Boron</b>	<b>66 J</b>		250	54	ug/L		02/18/14 12:31	02/21/14 17:40	5
Cadmium	ND		25	4.6	ug/L		02/18/14 12:31	02/21/14 17:40	5
<b>Calcium</b>	<b>82000</b>		5000	530	ug/L		02/18/14 12:31	02/21/14 17:40	5
Chromium	ND		50	16	ug/L		02/18/14 12:31	02/21/14 17:40	5
Cobalt	ND		250	25	ug/L		02/18/14 12:31	02/21/14 17:40	5
Copper	ND		130	23	ug/L		02/18/14 12:31	02/21/14 17:40	5
Iron	ND		500	140	ug/L		02/18/14 12:31	02/21/14 17:40	5
Lead	ND		50	7.5	ug/L		02/18/14 12:31	02/21/14 17:40	5
<b>Magnesium</b>	<b>34000</b>		5000	660	ug/L		02/18/14 12:31	02/21/14 17:40	5
<b>Manganese</b>	<b>330</b>		75	17	ug/L		02/18/14 12:31	02/21/14 17:40	5
Nickel	ND		200	67	ug/L		02/18/14 12:31	02/21/14 17:40	5

TestAmerica St. Louis

# Client Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

## Client Sample ID: PZ-212-SD

Lab Sample ID: 160-5553-1

Matrix: Water

Date Collected: 02/14/14 08:55  
Date Received: 02/14/14 09:45

### Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	ND	^	25000	8300	ug/L		02/18/14 12:31	02/21/14 17:40	5
Selenium	ND		75	13	ug/L		02/18/14 12:31	02/21/14 17:40	5
Silver	ND		50	30	ug/L		02/18/14 12:31	02/21/14 17:40	5
Sodium	100000	^	5000	1600	ug/L		02/18/14 12:31	02/21/14 17:40	5
Strontium	420		25	2.7	ug/L		02/18/14 12:31	02/21/14 17:40	5
Thallium	ND		100	20	ug/L		02/18/14 12:31	02/21/14 17:40	5
Vanadium	ND		250	20	ug/L		02/18/14 12:31	02/21/14 17:40	5
Zinc	37	J B	100	26	ug/L		02/18/14 12:31	02/21/14 17:40	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.060	ug/L		02/25/14 09:12	02/25/14 09:41	1

### Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.060	ug/L		02/25/14 09:18	02/25/14 09:58	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.016	J	0.020	0.0040	mg/L			02/14/14 17:15	1
Bromide	0.15	J	0.25	0.025	mg/L			02/14/14 17:15	1
Iodide	ND		1.0	0.10	mg/L			02/24/14 20:19	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	360		5.0	5.0	mg/L			02/24/14 17:20	1

### General Chemistry - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	40		4.0	0.40	mg/L			02/20/14 02:54	20
Sulfate	74	B	10	1.0	mg/L			02/14/14 17:32	20

## Client Sample ID: TRIP BLANK

Lab Sample ID: 160-5553-2

Matrix: Water

Date Collected: 02/14/14 00:00  
Date Received: 02/14/14 09:45

### Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		20	6.7	ug/L			02/16/14 20:49	1
Benzene	ND		5.0	0.25	ug/L			02/16/14 20:49	1
Bromodichloromethane	ND		5.0	0.25	ug/L			02/16/14 20:49	1
Bromoform	ND		5.0	0.37	ug/L			02/16/14 20:49	1
Bromomethane	ND		10	0.40	ug/L			02/16/14 20:49	1
2-Butanone (MEK)	ND		20	0.39	ug/L			02/16/14 20:49	1
Carbon disulfide	ND		5.0	0.37	ug/L			02/16/14 20:49	1
Carbon tetrachloride	ND		5.0	0.36	ug/L			02/16/14 20:49	1
Chlorobenzene	ND		5.0	0.38	ug/L			02/16/14 20:49	1
Chloroethane	ND		10	0.38	ug/L			02/16/14 20:49	1
Chloroform	ND		5.0	0.15	ug/L			02/16/14 20:49	1
Chloromethane	ND		10	0.55	ug/L			02/16/14 20:49	1
cis-1,2-Dichloroethene	ND		5.0	0.16	ug/L			02/16/14 20:49	1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/L			02/16/14 20:49	1

TestAmerica St. Louis

# Client Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

**Client Sample ID: TRIP BLANK**

**Lab Sample ID: 160-5553-2**

Date Collected: 02/14/14 00:00  
Date Received: 02/14/14 09:45

Matrix: Water

**Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyclohexane	ND		10	0.36	ug/L		02/16/14 20:49		1
Dibromochloromethane	ND		5.0	0.33	ug/L		02/16/14 20:49		1
1,2-Dibromo-3-Chloropropane	ND		10	1.2	ug/L		02/16/14 20:49		1
1,2-Dibromoethane (EDB)	ND		5.0	0.44	ug/L		02/16/14 20:49		1
1,2-Dichlorobenzene	ND		5.0	0.28	ug/L		02/16/14 20:49		1
1,3-Dichlorobenzene	ND		5.0	0.23	ug/L		02/16/14 20:49		1
1,4-Dichlorobenzene	ND		5.0	0.35	ug/L		02/16/14 20:49		1
Dichlorodifluoromethane	ND		10	0.45	ug/L		02/16/14 20:49		1
1,1-Dichloroethane	ND		5.0	0.39	ug/L		02/16/14 20:49		1
1,2-Dichloroethane	ND		5.0	0.37	ug/L		02/16/14 20:49		1
1,1-Dichloroethene	ND		5.0	0.37	ug/L		02/16/14 20:49		1
1,2-Dichloropropane	ND		5.0	0.32	ug/L		02/16/14 20:49		1
Ethylbenzene	ND		5.0	0.30	ug/L		02/16/14 20:49		1
2-Hexanone	ND		20	0.59	ug/L		02/16/14 20:49		1
Isopropylbenzene	ND		5.0	0.26	ug/L		02/16/14 20:49		1
Methyl acetate	ND		25	2.3	ug/L		02/16/14 20:49		1
Methylcyclohexane	ND		10	0.26	ug/L		02/16/14 20:49		1
Methylene Chloride	ND		5.0	1.7	ug/L		02/16/14 20:49		1
4-Methyl-2-pentanone (MIBK)	ND		20	0.33	ug/L		02/16/14 20:49		1
Methyl tert-butyl ether	ND		5.0	0.40	ug/L		02/16/14 20:49		1
m-Xylene & p-Xylene	ND		5.0	0.57	ug/L		02/16/14 20:49		1
o-Xylene	ND		5.0	0.32	ug/L		02/16/14 20:49		1
Styrene	ND		5.0	0.35	ug/L		02/16/14 20:49		1
1,1,2,2-Tetrachloroethane	ND		5.0	0.43	ug/L		02/16/14 20:49		1
Tetrachloroethene	ND		5.0	0.28	ug/L		02/16/14 20:49		1
Toluene	ND		5.0	1.0	ug/L		02/16/14 20:49		1
trans-1,2-Dichloroethene	ND		5.0	0.18	ug/L		02/16/14 20:49		1
trans-1,3-Dichloropropene	ND		5.0	0.35	ug/L		02/16/14 20:49		1
1,2,4-Trichlorobenzene	ND		5.0	0.55	ug/L		02/16/14 20:49		1
1,1,1-Trichloroethane	ND		5.0	0.29	ug/L		02/16/14 20:49		1
1,1,2-Trichloroethane	ND		5.0	0.57	ug/L		02/16/14 20:49		1
Trichloroethene	ND		5.0	0.29	ug/L		02/16/14 20:49		1
Trichlorofluoromethane	ND		5.0	0.22	ug/L		02/16/14 20:49		1
Vinyl chloride	ND		5.0	0.43	ug/L		02/16/14 20:49		1
Xylenes, Total	ND		10	0.85	ug/L		02/16/14 20:49		1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>	
4-Bromofluorobenzene (Surr)	104		75 - 123				02/16/14 20:49		1
Dibromofluoromethane (Surr)	98		80 - 120				02/16/14 20:49		1
1,2-Dichloroethane-d4 (Surr)	100		78 - 127				02/16/14 20:49		1
Toluene-d8 (Surr)	97		80 - 120				02/16/14 20:49		1

TestAmerica St. Louis

# QC Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

## Method: 8260C - Volatile Organic Compounds by GC/MS

**Lab Sample ID: MB 160-105525/3-A**

**Matrix: Water**

**Analysis Batch: 105525**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acetone	ND		20	6.7	ug/L			02/16/14 16:15	1
Benzene	ND		5.0	0.25	ug/L			02/16/14 16:15	1
Bromodichloromethane	ND		5.0	0.25	ug/L			02/16/14 16:15	1
Bromoform	ND		5.0	0.37	ug/L			02/16/14 16:15	1
Bromomethane	ND		10	0.40	ug/L			02/16/14 16:15	1
2-Butanone (MEK)	ND		20	0.39	ug/L			02/16/14 16:15	1
Carbon disulfide	ND		5.0	0.37	ug/L			02/16/14 16:15	1
Carbon tetrachloride	ND		5.0	0.36	ug/L			02/16/14 16:15	1
Chlorobenzene	ND		5.0	0.38	ug/L			02/16/14 16:15	1
Chloroethane	ND		10	0.38	ug/L			02/16/14 16:15	1
Chloroform	ND		5.0	0.15	ug/L			02/16/14 16:15	1
Chloromethane	ND		10	0.55	ug/L			02/16/14 16:15	1
cis-1,2-Dichloroethene	ND		5.0	0.16	ug/L			02/16/14 16:15	1
cis-1,3-Dichloropropene	ND		5.0	0.34	ug/L			02/16/14 16:15	1
Cyclohexane	ND		10	0.36	ug/L			02/16/14 16:15	1
Dibromochloromethane	ND		5.0	0.33	ug/L			02/16/14 16:15	1
1,2-Dibromo-3-Chloropropane	ND		10	1.2	ug/L			02/16/14 16:15	1
1,2-Dibromoethane (EDB)	ND		5.0	0.44	ug/L			02/16/14 16:15	1
1,2-Dichlorobenzene	ND		5.0	0.28	ug/L			02/16/14 16:15	1
1,3-Dichlorobenzene	ND		5.0	0.23	ug/L			02/16/14 16:15	1
1,4-Dichlorobenzene	ND		5.0	0.35	ug/L			02/16/14 16:15	1
Dichlorodifluoromethane	ND		10	0.45	ug/L			02/16/14 16:15	1
1,1-Dichloroethane	ND		5.0	0.39	ug/L			02/16/14 16:15	1
1,2-Dichloroethane	ND		5.0	0.37	ug/L			02/16/14 16:15	1
1,1-Dichloroethene	ND		5.0	0.37	ug/L			02/16/14 16:15	1
1,2-Dichloropropane	ND		5.0	0.32	ug/L			02/16/14 16:15	1
Ethylbenzene	ND		5.0	0.30	ug/L			02/16/14 16:15	1
2-Hexanone	ND		20	0.59	ug/L			02/16/14 16:15	1
Isopropylbenzene	ND		5.0	0.26	ug/L			02/16/14 16:15	1
Methyl acetate	ND		25	2.3	ug/L			02/16/14 16:15	1
Methylcyclohexane	ND		10	0.26	ug/L			02/16/14 16:15	1
Methylene Chloride	ND		5.0	1.7	ug/L			02/16/14 16:15	1
4-Methyl-2-pentanone (MIBK)	ND		20	0.33	ug/L			02/16/14 16:15	1
Methyl tert-butyl ether	ND		5.0	0.40	ug/L			02/16/14 16:15	1
m-Xylene & p-Xylene	ND		5.0	0.57	ug/L			02/16/14 16:15	1
o-Xylene	ND		5.0	0.32	ug/L			02/16/14 16:15	1
Styrene	ND		5.0	0.35	ug/L			02/16/14 16:15	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.43	ug/L			02/16/14 16:15	1
Tetrachloroethene	ND		5.0	0.28	ug/L			02/16/14 16:15	1
Toluene	ND		5.0	1.0	ug/L			02/16/14 16:15	1
trans-1,2-Dichloroethene	ND		5.0	0.18	ug/L			02/16/14 16:15	1
trans-1,3-Dichloropropene	ND		5.0	0.35	ug/L			02/16/14 16:15	1
1,2,4-Trichlorobenzene	ND		5.0	0.55	ug/L			02/16/14 16:15	1
1,1,1-Trichloroethane	ND		5.0	0.29	ug/L			02/16/14 16:15	1
1,1,2-Trichloroethane	ND		5.0	0.57	ug/L			02/16/14 16:15	1
Trichloroethene	ND		5.0	0.29	ug/L			02/16/14 16:15	1
Trichlorofluoromethane	ND		5.0	0.22	ug/L			02/16/14 16:15	1
Vinyl chloride	ND		5.0	0.43	ug/L			02/16/14 16:15	1

TestAmerica St. Louis

# QC Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

## Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

**Lab Sample ID: MB 160-105525/3-A**

**Matrix: Water**

**Analysis Batch: 105525**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	ND	10									
Xylenes, Total										02/16/14 16:15	1
<hr/>											
Surrogate	MB	MB	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108				75 - 123					02/16/14 16:15	1
Dibromofluoromethane (Surr)	100				80 - 120					02/16/14 16:15	1
1,2-Dichloroethane-d4 (Surr)	103				78 - 127					02/16/14 16:15	1
Toluene-d8 (Surr)	104				80 - 120					02/16/14 16:15	1

**Lab Sample ID: LCS 160-105525/4-A**

**Matrix: Water**

**Analysis Batch: 105525**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSS	LCSS	Unit	D	%Rec	Limits
		Result	Qualifier				
Acetone	50.0	53.3		ug/L		107	72 - 139
Benzene	50.0	52.6		ug/L		105	80 - 120
Bromodichloromethane	50.0	53.2		ug/L		106	80 - 120
Bromoform	50.0	53.7		ug/L		107	80 - 120
Bromomethane	50.0	51.8		ug/L		104	48 - 140
2-Butanone (MEK)	50.0	49.3		ug/L		99	68 - 128
Carbon disulfide	50.0	53.8		ug/L		108	79 - 120
Carbon tetrachloride	50.0	53.8		ug/L		108	74 - 128
Chlorobenzene	50.0	52.1		ug/L		104	80 - 120
Chloroethane	50.0	48.8		ug/L		98	55 - 140
Chloroform	50.0	53.0		ug/L		106	80 - 120
Chloromethane	50.0	51.1		ug/L		102	72 - 123
cis-1,2-Dichloroethene	50.0	51.4		ug/L		103	80 - 120
cis-1,3-Dichloropropene	50.0	51.9		ug/L		104	80 - 120
Cyclohexane	50.0	54.2		ug/L		108	77 - 127
Dibromochloromethane	50.0	53.3		ug/L		107	80 - 120
1,2-Dibromo-3-Chloropropane	50.0	55.2		ug/L		110	69 - 135
1,2-Dibromoethane (EDB)	50.0	52.6		ug/L		105	80 - 120
1,2-Dichlorobenzene	50.0	52.0		ug/L		104	76 - 122
1,3-Dichlorobenzene	50.0	51.4		ug/L		103	77 - 122
1,4-Dichlorobenzene	50.0	52.2		ug/L		104	80 - 120
Dichlorodifluoromethane	50.0	48.6		ug/L		97	49 - 140
1,1-Dichloroethane	50.0	53.3		ug/L		107	80 - 120
1,2-Dichloroethane	50.0	53.2		ug/L		106	80 - 120
1,1-Dichloroethene	50.0	52.7		ug/L		105	77 - 121
1,2-Dichloropropane	50.0	53.5		ug/L		107	80 - 120
Ethylbenzene	50.0	53.0		ug/L		106	80 - 120
2-Hexanone	50.0	54.1		ug/L		108	64 - 136
Isopropylbenzene	50.0	54.3		ug/L		109	80 - 127
Methyl acetate	250	256		ug/L		102	66 - 132
Methylcyclohexane	50.0	56.9		ug/L		114	75 - 131
Methylene Chloride	50.0	51.0		ug/L		102	79 - 115
4-Methyl-2-pentanone (MIBK)	50.0	56.5		ug/L		113	74 - 129
Methyl tert-butyl ether	50.0	54.1		ug/L		108	77 - 124
m-Xylene & p-Xylene	50.0	52.7		ug/L		105	80 - 120

TestAmerica St. Louis

# QC Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

## Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

**Lab Sample ID: LCS 160-105525/4-A**

**Matrix: Water**

**Analysis Batch: 105525**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS		Unit	D	%Rec	Limits	%Rec.
		Result	Qualifier					
o-Xylene	50.0	53.4		ug/L		107	79 - 126	
Styrene	50.0	56.6		ug/L		113	80 - 120	
1,1,2,2-Tetrachloroethane	50.0	53.0		ug/L		106	80 - 120	
Tetrachloroethylene	50.0	52.3		ug/L		105	80 - 120	
Toluene	50.0	53.1		ug/L		106	80 - 120	
trans-1,2-Dichloroethylene	50.0	52.9		ug/L		106	80 - 120	
trans-1,3-Dichloropropene	50.0	52.6		ug/L		105	80 - 120	
1,2,4-Trichlorobenzene	50.0	53.8		ug/L		108	82 - 124	
1,1,1-Trichloroethane	50.0	54.6		ug/L		109	75 - 127	
1,1,2-Trichloroethane	50.0	52.7		ug/L		105	80 - 120	
Trichloroethylene	50.0	56.9		ug/L		114	80 - 120	
Trichlorofluoromethane	50.0	47.9		ug/L		96	72 - 132	
Vinyl chloride	50.0	49.8		ug/L		100	68 - 120	
Xylenes, Total	100	106		ug/L		106	80 - 120	

**LCS LCS**

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	95		75 - 123
Dibromofluoromethane (Surr)	98		80 - 120
1,2-Dichloroethane-d4 (Surr)	98		78 - 127
Toluene-d8 (Surr)	99		80 - 120

**Lab Sample ID: 160-5553-1 MS**

**Matrix: Water**

**Analysis Batch: 105525**

**Client Sample ID: PZ-212-SD**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
Acetone	ND		50.0	60.9		ug/L		122	54 - 140
Benzene	ND		50.0	53.8		ug/L		108	72 - 123
Bromodichloromethane	ND		50.0	56.3		ug/L		113	80 - 120
Bromoform	ND		50.0	53.7		ug/L		107	78 - 122
Bromomethane	ND		50.0	54.2		ug/L		108	51 - 146
2-Butanone (MEK)	ND		50.0	55.7		ug/L		111	62 - 135
Carbon disulfide	ND		50.0	53.0		ug/L		106	80 - 120
Carbon tetrachloride	ND		50.0	52.3		ug/L		105	80 - 124
Chlorobenzene	ND		50.0	52.3		ug/L		105	80 - 120
Chloroethane	ND		50.0	51.2		ug/L		102	53 - 148
Chloroform	ND		50.0	55.1		ug/L		110	80 - 120
Chloromethane	ND		50.0	51.0		ug/L		102	80 - 120
cis-1,2-Dichloroethene	ND		50.0	52.6		ug/L		105	80 - 120
cis-1,3-Dichloropropene	ND		50.0	57.3		ug/L		115	80 - 120
Cyclohexane	ND		50.0	51.6		ug/L		103	80 - 120
Dibromochloromethane	ND		50.0	55.3		ug/L		111	80 - 120
1,2-Dibromo-3-Chloropropane	ND		50.0	58.5		ug/L		117	59 - 144
1,2-Dibromoethane (EDB)	ND		50.0	54.3		ug/L		109	80 - 120
1,2-Dichlorobenzene	ND		50.0	50.8		ug/L		102	77 - 117
1,3-Dichlorobenzene	ND		50.0	49.6		ug/L		99	80 - 120
1,4-Dichlorobenzene	ND		50.0	51.3		ug/L		103	80 - 120
Dichlorodifluoromethane	ND		50.0	47.1		ug/L		94	70 - 131

TestAmerica St. Louis

# QC Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

## Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

**Lab Sample ID: 160-5553-1 MS**

**Matrix: Water**

**Analysis Batch: 105525**

**Client Sample ID: PZ-212-SD**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits		
	Result	Qualifier	Added	Result	Qualifier						
1,1-Dichloroethane	ND		50.0	54.4		ug/L		109	80 - 120		
1,2-Dichloroethane	ND		50.0	57.2		ug/L		114	80 - 120		
1,1-Dichloroethene	ND		50.0	52.6		ug/L		105	80 - 120		
1,2-Dichloropropane	ND		50.0	56.3		ug/L		113	80 - 120		
Ethylbenzene	ND		50.0	51.5		ug/L		103	80 - 120		
2-Hexanone	ND		50.0	56.7		ug/L		113	65 - 136		
Isopropylbenzene	ND		50.0	51.0		ug/L		102	78 - 125		
Methyl acetate	ND		250	275		ug/L		110	70 - 126		
Methylcyclohexane	ND		50.0	56.3		ug/L		113	83 - 124		
Methylene Chloride	ND		50.0	52.5		ug/L		105	80 - 120		
4-Methyl-2-pentanone (MIBK)	ND		50.0	60.1		ug/L		120	74 - 132		
Methyl tert-butyl ether	ND		50.0	57.2		ug/L		114	78 - 124		
m-Xylene & p-Xylene	ND		50.0	51.5		ug/L		103	80 - 120		
o-Xylene	ND		50.0	52.3		ug/L		105	79 - 124		
Styrene	ND		50.0	56.4		ug/L		113	80 - 120		
1,1,2,2-Tetrachloroethane	ND		50.0	53.5		ug/L		107	72 - 125		
Tetrachloroethene	ND		50.0	50.5		ug/L		101	80 - 120		
Toluene	ND		50.0	52.2		ug/L		104	80 - 120		
trans-1,2-Dichloroethene	ND		50.0	52.6		ug/L		105	80 - 120		
trans-1,3-Dichloropropene	ND		50.0	55.7		ug/L		111	77 - 122		
1,2,4-Trichlorobenzene	ND		50.0	53.3		ug/L		107	78 - 124		
1,1,1-Trichloroethane	ND		50.0	52.6		ug/L		105	81 - 123		
1,1,2-Trichloroethane	ND		50.0	54.7		ug/L		109	76 - 119		
Trichloroethene	ND		50.0	57.0		ug/L		114	80 - 120		
Trichlorofluoromethane	ND		50.0	51.0		ug/L		102	79 - 128		
Vinyl chloride	ND		50.0	49.6		ug/L		99	75 - 118		
Xylenes, Total	ND		100	104		ug/L		104	80 - 120		
<hr/>											
Surrogate		MS	MS								
		%Recovery	Qualifier			Limits					
4-Bromofluorobenzene (Surr)		96				75 - 123					
Dibromofluoromethane (Surr)		107				80 - 120					
1,2-Dichloroethane-d4 (Surr)		109				78 - 127					
Toluene-d8 (Surr)		100				80 - 120					

**Lab Sample ID: 160-5553-1 MSD**

**Matrix: Water**

**Analysis Batch: 105525**

**Client Sample ID: PZ-212-SD**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Acetone	ND		50.0	60.4		ug/L		121	54 - 140	1	20
Benzene	ND		50.0	51.5		ug/L		103	72 - 123	4	20
Bromodichloromethane	ND		50.0	51.8		ug/L		104	80 - 120	8	20
Bromoform	ND		50.0	50.2		ug/L		100	78 - 122	7	20
Bromomethane	ND		50.0	48.9		ug/L		98	51 - 146	10	20
2-Butanone (MEK)	ND		50.0	48.7		ug/L		97	62 - 135	13	20
Carbon disulfide	ND		50.0	51.8		ug/L		104	80 - 120	2	20
Carbon tetrachloride	ND		50.0	52.4		ug/L		105	80 - 124	0	20
Chlorobenzene	ND		50.0	50.4		ug/L		101	80 - 120	4	20

TestAmerica St. Louis

# QC Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

## Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

**Lab Sample ID: 160-5553-1 MSD**

**Matrix: Water**

**Analysis Batch: 105525**

**Client Sample ID: PZ-212-SD**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier						
Chloroethane	ND		50.0	48.5		ug/L		97	53 - 148	5	20
Chloroform	ND		50.0	52.0		ug/L		104	80 - 120	6	20
Chloromethane	ND		50.0	49.7		ug/L		99	80 - 120	3	20
cis-1,2-Dichloroethene	ND		50.0	49.9		ug/L		100	80 - 120	5	20
cis-1,3-Dichloropropene	ND		50.0	49.8		ug/L		100	80 - 120	14	20
Cyclohexane	ND		50.0	52.7		ug/L		105	80 - 120	2	20
Dibromochloromethane	ND		50.0	52.3		ug/L		105	80 - 120	5	20
1,2-Dibromo-3-Chloropropane	ND		50.0	54.6		ug/L		109	59 - 144	7	20
1,2-Dibromoethane (EDB)	ND		50.0	51.4		ug/L		103	80 - 120	6	20
1,2-Dichlorobenzene	ND		50.0	49.6		ug/L		99	77 - 117	2	20
1,3-Dichlorobenzene	ND		50.0	48.2		ug/L		96	80 - 120	3	20
1,4-Dichlorobenzene	ND		50.0	49.5		ug/L		99	80 - 120	4	20
Dichlorodifluoromethane	ND		50.0	47.6		ug/L		95	70 - 131	1	20
1,1-Dichloroethane	ND		50.0	52.0		ug/L		104	80 - 120	4	20
1,2-Dichloroethane	ND		50.0	52.6		ug/L		105	80 - 120	8	20
1,1-Dichloroethene	ND		50.0	50.8		ug/L		102	80 - 120	3	20
1,2-Dichloropropene	ND		50.0	52.2		ug/L		104	80 - 120	8	20
Ethylbenzene	ND		50.0	51.2		ug/L		102	80 - 120	0	20
2-Hexanone	ND		50.0	59.4		ug/L		119	65 - 136	5	20
Isopropylbenzene	ND		50.0	51.3		ug/L		103	78 - 125	1	20
Methyl acetate	ND		250	259		ug/L		104	70 - 126	6	20
Methylcyclohexane	ND		50.0	55.5		ug/L		111	83 - 124	1	20
Methylene Chloride	ND		50.0	50.3		ug/L		101	80 - 120	4	20
4-Methyl-2-pentanone (MIBK)	ND		50.0	56.7		ug/L		113	74 - 132	6	20
Methyl tert-butyl ether	ND		50.0	53.2		ug/L		106	78 - 124	7	20
m-Xylene & p-Xylene	ND		50.0	51.3		ug/L		103	80 - 120	0	20
o-Xylene	ND		50.0	51.7		ug/L		103	79 - 124	1	20
Styrene	ND		50.0	52.1		ug/L		104	80 - 120	8	20
1,1,2,2-Tetrachloroethane	ND		50.0	50.2		ug/L		100	72 - 125	6	20
Tetrachloroethene	ND		50.0	49.2		ug/L		98	80 - 120	3	20
Toluene	ND		50.0	51.1		ug/L		102	80 - 120	2	20
trans-1,2-Dichloroethene	ND		50.0	51.2		ug/L		102	80 - 120	3	20
trans-1,3-Dichloropropene	ND		50.0	50.5		ug/L		101	77 - 122	10	20
1,2,4-Trichlorobenzene	ND		50.0	51.8		ug/L		104	78 - 124	3	20
1,1,1-Trichloroethane	ND		50.0	52.2		ug/L		104	81 - 123	1	20
1,1,2-Trichloroethane	ND		50.0	51.4		ug/L		103	76 - 119	6	20
Trichloroethene	ND		50.0	54.5		ug/L		109	80 - 120	4	20
Trichlorofluoromethane	ND		50.0	49.0		ug/L		98	79 - 128	4	20
Vinyl chloride	ND		50.0	49.4		ug/L		99	75 - 118	0	20
Xylenes, Total	ND		100	103		ug/L		103	80 - 120	1	20

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	92		75 - 123
Dibromofluoromethane (Surr)	99		80 - 120
1,2-Dichloroethane-d4 (Surr)	102		78 - 127
Toluene-d8 (Surr)	97		80 - 120

TestAmerica St. Louis

# QC Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

## Method: 6010C - Metals (ICP)

**Lab Sample ID: MB 160-105783/1-A**

**Matrix: Water**

**Analysis Batch: 106962**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 105783**

Analyte	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier									
Aluminum	ND				200	80	ug/L		02/18/14 12:31	02/21/14 17:18	1
Antimony	ND				10	4.0	ug/L		02/18/14 12:31	02/21/14 17:18	1
Arsenic	ND				10	2.0	ug/L		02/18/14 12:31	02/21/14 17:18	1
Barium	ND				50	4.0	ug/L		02/18/14 12:31	02/21/14 17:18	1
Beryllium	ND				5.0	0.61	ug/L		02/18/14 12:31	02/21/14 17:18	1
Boron	ND				50	11	ug/L		02/18/14 12:31	02/21/14 17:18	1
Cadmium	ND				5.0	0.91	ug/L		02/18/14 12:31	02/21/14 17:18	1
Calcium	ND				1000	110	ug/L		02/18/14 12:31	02/21/14 17:18	1
Chromium	ND				10	3.1	ug/L		02/18/14 12:31	02/21/14 17:18	1
Cobalt	ND				50	4.9	ug/L		02/18/14 12:31	02/21/14 17:18	1
Copper	ND				25	4.6	ug/L		02/18/14 12:31	02/21/14 17:18	1
Iron	ND				100	28	ug/L		02/18/14 12:31	02/21/14 17:18	1
Lead	ND				10	1.5	ug/L		02/18/14 12:31	02/21/14 17:18	1
Magnesium	ND				1000	130	ug/L		02/18/14 12:31	02/21/14 17:18	1
Manganese	ND				15	3.3	ug/L		02/18/14 12:31	02/21/14 17:18	1
Nickel	ND				40	13	ug/L		02/18/14 12:31	02/21/14 17:18	1
Potassium	ND				5000	1700	ug/L		02/18/14 12:31	02/21/14 17:18	1
Selenium	ND				15	2.7	ug/L		02/18/14 12:31	02/21/14 17:18	1
Silver	ND				10	6.0	ug/L		02/18/14 12:31	02/21/14 17:18	1
Sodium	ND				1000	320	ug/L		02/18/14 12:31	02/21/14 17:18	1
Strontium	ND				5.0	0.54	ug/L		02/18/14 12:31	02/21/14 17:18	1
Thallium	ND				20	4.0	ug/L		02/18/14 12:31	02/21/14 17:18	1
Vanadium	ND				50	4.1	ug/L		02/18/14 12:31	02/21/14 17:18	1
Zinc	7.60	J			20	5.2	ug/L		02/18/14 12:31	02/21/14 17:18	1

**Lab Sample ID: LCS 160-105783/2-A**

**Matrix: Water**

**Analysis Batch: 106962**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 105783**

Analyte	Spike Added	Spike	LCS	LCS	Unit	D	%Rec	%Rec.	
		Result	Qualifier	Limits					
Aluminum	10000	9940		ug/L		99	80 - 120		
Antimony	500	502		ug/L		100	80 - 120		
Arsenic	1000	977		ug/L		98	80 - 120		
Barium	1000	989		ug/L		99	80 - 120		
Beryllium	1000	980		ug/L		98	80 - 120		
Boron	2000	1890		ug/L		94	80 - 120		
Cadmium	1000	995		ug/L		99	80 - 120		
Calcium	10000	10700		ug/L		107	80 - 120		
Chromium	1000	1010		ug/L		101	80 - 120		
Cobalt	1000	1070		ug/L		107	80 - 120		
Copper	1000	1040		ug/L		104	80 - 120		
Iron	10000	9670		ug/L		97	80 - 120		
Lead	1000	1070		ug/L		107	80 - 120		
Magnesium	10000	9180		ug/L		92	80 - 120		
Manganese	1000	957		ug/L		96	80 - 120		
Nickel	1000	1050		ug/L		105	80 - 120		
Potassium	10000	11700		ug/L		117	80 - 120		
Selenium	500	502		ug/L		100	80 - 120		

TestAmerica St. Louis

# QC Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

## Method: 6010C - Metals (ICP) (Continued)

**Lab Sample ID: LCS 160-105783/2-A**

**Matrix: Water**

**Analysis Batch: 106962**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 105783**

Analyte		Spike	LCS	LCS	Unit	D	%Rec	Limits	
		Added	Result	Qualifier					
Silver		200	204		ug/L		102	80 - 120	
Sodium		10000	11700		ug/L		117	80 - 120	
Strontium		1000	1020		ug/L		102	80 - 120	
Thallium		200	232		ug/L		116	80 - 120	
Vanadium		1000	977		ug/L		98	80 - 120	
Zinc		1000	1040		ug/L		104	80 - 120	

**Lab Sample ID: 160-5553-1 MS**

**Matrix: Water**

**Analysis Batch: 106962**

**Client Sample ID: PZ-212-SD**

**Prep Type: Total/NA**

**Prep Batch: 105783**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits	
	Result	Qualifier	Added	Result	Qualifier					
Aluminum	ND		10000	9720		ug/L		97	75 - 125	
Antimony	ND		500	511		ug/L		102	75 - 125	
Arsenic	ND		1000	988		ug/L		99	75 - 125	
Barium	130 J		1000	1110		ug/L		98	75 - 125	
Beryllium	ND		1000	988		ug/L		99	75 - 125	
Boron	86 J		2000	1950		ug/L		93	75 - 125	
Cadmium	ND		1000	999		ug/L		100	75 - 125	
Calcium	80000		10000	93700 4		ug/L		137	75 - 125	
Chromium	ND		1000	1040		ug/L		104	75 - 125	
Cobalt	ND		1000	1080		ug/L		108	75 - 125	
Copper	ND		1000	1020		ug/L		102	75 - 125	
Iron	ND		10000	9870		ug/L		99	75 - 125	
Lead	ND		1000	1060		ug/L		106	75 - 125	
Magnesium	33000		10000	43200		ug/L		101	75 - 125	
Manganese	320		1000	1300		ug/L		98	75 - 125	
Nickel	ND		1000	1050		ug/L		105	75 - 125	
Potassium	ND ^		10000	13400 J F1		ug/L		134	75 - 125	
Selenium	ND		500	491		ug/L		98	75 - 125	
Silver	ND		200	207		ug/L		104	75 - 125	
Sodium	110000 ^		10000	111000 4		ug/L		39	75 - 125	
Strontium	410		1000	1430		ug/L		102	75 - 125	
Thallium	ND		200	247		ug/L		124	75 - 125	
Vanadium	ND		1000	988		ug/L		99	75 - 125	
Zinc	51 J B		1000	1060		ug/L		101	75 - 125	

**Lab Sample ID: 160-5553-1 MSD**

**Matrix: Water**

**Analysis Batch: 106962**

**Client Sample ID: PZ-212-SD**

**Prep Type: Total/NA**

**Prep Batch: 105783**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Aluminum	ND		10000	9880		ug/L		99	75 - 125	2	20
Antimony	ND		500	509		ug/L		102	75 - 125	0	20
Arsenic	ND		1000	989		ug/L		99	75 - 125	0	20
Barium	130 J		1000	1120		ug/L		98	75 - 125	0	20
Beryllium	ND		1000	989		ug/L		99	75 - 125	0	20
Boron	86 J		2000	1970		ug/L		94	75 - 125	1	20
Cadmium	ND		1000	1010		ug/L		101	75 - 125	1	20

TestAmerica St. Louis

# QC Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

## Method: 6010C - Metals (ICP) (Continued)

**Lab Sample ID: 160-5553-1 MSD**

**Matrix: Water**

**Analysis Batch: 106962**

**Client Sample ID: PZ-212-SD**

**Prep Type: Total/NA**

**Prep Batch: 105783**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier						
Calcium	80000		10000	93700	4	ug/L		137	75 - 125	0	20
Chromium	ND		1000	1030		ug/L		103	75 - 125	0	20
Cobalt	ND		1000	1090		ug/L		109	75 - 125	0	20
Copper	ND		1000	1040		ug/L		104	75 - 125	2	20
Iron	ND		10000	9910		ug/L		99	75 - 125	0	20
Lead	ND		1000	1070		ug/L		107	75 - 125	1	20
Magnesium	33000		10000	43200		ug/L		101	75 - 125	0	20
Manganese	320		1000	1300		ug/L		98	75 - 125	0	20
Nickel	ND		1000	1060		ug/L		106	75 - 125	0	20
Potassium	ND ^		10000	13500	J F1	ug/L		135	75 - 125	1	20
Selenium	ND		500	502		ug/L		100	75 - 125	2	20
Silver	ND		200	207		ug/L		104	75 - 125	0	20
Sodium	110000 ^		10000	112000	4	ug/L		43	75 - 125	0	20
Strontium	410		1000	1420		ug/L		102	75 - 125	0	20
Thallium	ND		200	244		ug/L		122	75 - 125	1	20
Vanadium	ND		1000	1010		ug/L		101	75 - 125	2	20
Zinc	51 J B		1000	1080		ug/L		103	75 - 125	1	20

**Lab Sample ID: 160-5553-1 MS**

**Matrix: Water**

**Analysis Batch: 106962**

**Client Sample ID: PZ-212-SD**

**Prep Type: Dissolved**

**Prep Batch: 105783**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits		
	Result	Qualifier	Added	Result	Qualifier						
Aluminum	ND		10000	9520		ug/L		95	75 - 125		
Antimony	ND		500	490		ug/L		98	75 - 125		
Arsenic	ND		1000	949		ug/L		95	75 - 125		
Barium	140 J		1000	1100		ug/L		96	75 - 125		
Beryllium	ND		1000	974		ug/L		97	75 - 125		
Boron	66 J		2000	1950		ug/L		94	75 - 125		
Cadmium	ND		1000	963		ug/L		96	75 - 125		
Calcium	82000		10000	89800	4	ug/L		77	75 - 125		
Chromium	ND		1000	1000		ug/L		100	75 - 125		
Cobalt	ND		1000	1030		ug/L		103	75 - 125		
Copper	ND		1000	993		ug/L		99	75 - 125		
Iron	ND		10000	9600		ug/L		96	75 - 125		
Lead	ND		1000	1040		ug/L		104	75 - 125		
Magnesium	34000		10000	42700		ug/L		91	75 - 125		
Manganese	330		1000	1280		ug/L		95	75 - 125		
Nickel	ND		1000	1020		ug/L		102	75 - 125		
Potassium	ND ^		10000	13000	J F1	ug/L		130	75 - 125		
Selenium	ND		500	478		ug/L		96	75 - 125		
Silver	ND		200	201		ug/L		101	75 - 125		
Sodium	100000 ^		10000	110000	4 ^	ug/L		84	75 - 125		
Strontium	420		1000	1410		ug/L		99	75 - 125		
Thallium	ND		200	235		ug/L		117	75 - 125		
Vanadium	ND		1000	963		ug/L		96	75 - 125		
Zinc	37 J B		1000	1020		ug/L		99	75 - 125		

TestAmerica St. Louis

# QC Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

## Method: 6010C - Metals (ICP) (Continued)

**Lab Sample ID: 160-5553-1 MSD**

**Matrix: Water**

**Analysis Batch: 106962**

**Client Sample ID: PZ-212-SD**

**Prep Type: Dissolved**

**Prep Batch: 105783**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Aluminum	ND		10000	9720		ug/L		97	75 - 125	2	20	
Antimony	ND		500	504		ug/L		101	75 - 125	3	20	
Arsenic	ND		1000	983		ug/L		98	75 - 125	3	20	
Barium	140	J	1000	1110		ug/L		97	75 - 125	1	20	
Beryllium	ND		1000	987		ug/L		99	75 - 125	1	20	
Boron	66	J	2000	1970		ug/L		95	75 - 125	1	20	
Cadmium	ND		1000	993		ug/L		99	75 - 125	3	20	
Calcium	82000		10000	90500	4	ug/L		84	75 - 125	1	20	
Chromium	ND		1000	1020		ug/L		102	75 - 125	2	20	
Cobalt	ND		1000	1070		ug/L		107	75 - 125	3	20	
Copper	ND		1000	1020		ug/L		102	75 - 125	3	20	
Iron	ND		10000	9760		ug/L		98	75 - 125	2	20	
Lead	ND		1000	1070		ug/L		107	75 - 125	3	20	
Magnesium	34000		10000	42600		ug/L		91	75 - 125	0	20	
Manganese	330		1000	1290		ug/L		97	75 - 125	1	20	
Nickel	ND		1000	1050		ug/L		105	75 - 125	3	20	
Potassium	ND	^	10000	13300	J F1	ug/L		133	75 - 125	2	20	
Selenium	ND		500	492		ug/L		98	75 - 125	3	20	
Silver	ND		200	201		ug/L		101	75 - 125	0	20	
Sodium	100000	^	10000	110000	4 ^	ug/L		83	75 - 125	0	20	
Strontium	420		1000	1420		ug/L		100	75 - 125	0	20	
Thallium	ND		200	246		ug/L		123	75 - 125	5	20	
Vanadium	ND		1000	1000		ug/L		100	75 - 125	4	20	
Zinc	37	J B	1000	1060		ug/L		102	75 - 125	4	20	

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 160-107237/1-A**

**Matrix: Water**

**Analysis Batch: 107270**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 107237**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.20	0.060	ug/L		02/25/14 09:12	02/25/14 09:37	1

**Lab Sample ID: LCS 160-107237/2-A**

**Matrix: Water**

**Analysis Batch: 107270**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 107237**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	Limits
	Added	Result	Qualifier				
Mercury	5.00	5.16		ug/L		103	80 - 120

**Lab Sample ID: 160-5553-1 MS**

**Matrix: Water**

**Analysis Batch: 107270**

**Client Sample ID: PZ-212-SD**

**Prep Type: Total/NA**

**Prep Batch: 107237**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
Mercury	ND		5.00	4.03		ug/L		81	80 - 120

TestAmerica St. Louis

# QC Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

## Method: 7470A - Mercury (CVAA) (Continued)

**Lab Sample ID: 160-5553-1 MSD**

**Matrix: Water**

**Analysis Batch: 107270**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec.	RPD	Limit	
	Result	Qualifier	Added	Result	Qualifier						
Mercury	ND		5.00	3.92	F1	ug/L		78	80 - 120	3	20

**Lab Sample ID: MB 160-107238/1-A**

**Matrix: Water**

**Analysis Batch: 107270**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.20	0.060	ug/L		02/25/14 09:18	02/25/14 09:51	1

**Lab Sample ID: LCS 160-107238/2-A**

**Matrix: Water**

**Analysis Batch: 107270**

Analyte	MB	MB	Spike	LCS	LCS	Unit	D	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier				
Mercury			5.00	5.07		ug/L		101	80 - 120

**Lab Sample ID: 160-5553-1 MS**

**Matrix: Water**

**Analysis Batch: 107270**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier				
Mercury	ND		5.00	4.85		ug/L		97	80 - 120

**Lab Sample ID: 160-5553-1 MSD**

**Matrix: Water**

**Analysis Batch: 107270**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec.	RPD	Limit	
	Result	Qualifier	Added	Result	Qualifier						
Mercury	ND		5.00	4.89		ug/L		98	80 - 120	1	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 160-106127/4**

**Matrix: Water**

**Analysis Batch: 106127**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nitrate as N	ND		0.020	0.0040	mg/L			02/14/14 16:42	1
Bromide	ND		0.25	0.025	mg/L			02/14/14 16:42	1
Sulfate	0.115	J	0.50	0.050	mg/L			02/14/14 16:42	1

**Lab Sample ID: LCS 160-106127/5**

**Matrix: Water**

**Analysis Batch: 106127**

Analyte	MB	MB	Spike	LCS	LCS	Unit	D	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier				
Nitrate as N			0.400	0.394		mg/L		99	90 - 110
Bromide			2.00	2.01		mg/L		100	90 - 110
Sulfate			8.00	7.79		mg/L		97	90 - 110

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# QC Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: 160-5553-1 MS**

**Matrix: Water**

**Analysis Batch: 106127**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier				
Nitrate as N	0.016	J	0.400	0.394		mg/L		94	90 - 110
Bromide	0.15	J	2.00	2.15		mg/L		100	90 - 110

**Lab Sample ID: 160-5553-1 DU**

**Matrix: Water**

**Analysis Batch: 106127**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Nitrate as N	0.016	J	0.0158	J	mg/L		3	20
Bromide	0.15	J	0.158	J	mg/L		2	20

**Lab Sample ID: MB 160-106657/10**

**Matrix: Water**

**Analysis Batch: 106657**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	ND		0.20	0.020	mg/L			02/19/14 20:20	1

**Lab Sample ID: LCS 160-106657/11**

**Matrix: Water**

**Analysis Batch: 106657**

Analyte	Spike	LCS	LCS	Unit	D	%Rec.	Limits
	Added	Result	Qualifier				
Chloride	2.00	1.92		mg/L		96	90 - 110

**Lab Sample ID: MB 160-107224/9**

**Matrix: Water**

**Analysis Batch: 107224**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Iodide	ND		1.0	0.10	mg/L			02/24/14 18:46	1

**Lab Sample ID: LCS 160-107224/10**

**Matrix: Water**

**Analysis Batch: 107224**

Analyte	Spike	LCS	LCS	Unit	D	%Rec.	Limits
	Added	Result	Qualifier				
Iodide	4.00	3.95		mg/L		99	90 - 110

**Lab Sample ID: 160-5553-1 MS**

**Matrix: Water**

**Analysis Batch: 107224**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier				
Iodide	ND		4.00	4.08		mg/L		102	90 - 110

Client Sample ID: PZ-212-SD

Prep Type: Total/NA

Client Sample ID: PZ-212-SD

Prep Type: Total/NA

Client Sample ID: Method Blank

Prep Type: Total/NA

Client Sample ID: Method Blank

Prep Type: Total/NA

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Client Sample ID: PZ-212-SD

Prep Type: Total/NA

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# QC Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID:** 160-5553-1 DU

**Matrix:** Water

**Analysis Batch:** 107224

**Client Sample ID:** PZ-212-SD

**Prep Type:** Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Iodide	ND		ND		mg/L		NC	20

## Method: 300.0 - Anions, Ion Chromatography - DL

**Lab Sample ID:** 160-5553-1 MS

**Client Sample ID:** PZ-212-SD

**Matrix:** Water

**Prep Type:** Total/NA

**Analysis Batch:** 106127

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier				
Sulfate - DL	74	B	80.0	153		mg/L		98	90 - 110

**Lab Sample ID:** 160-5553-1 DU

**Client Sample ID:** PZ-212-SD

**Matrix:** Water

**Prep Type:** Total/NA

**Analysis Batch:** 106127

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Sulfate - DL	74	B	74.7		mg/L		0.5	20

**Lab Sample ID:** 160-5553-1 MS

**Client Sample ID:** PZ-212-SD

**Matrix:** Water

**Prep Type:** Total/NA

**Analysis Batch:** 106657

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier				
Chloride - DL	40		40.0	82.8		mg/L		106	90 - 110

**Lab Sample ID:** 160-5553-1 DU

**Client Sample ID:** PZ-212-SD

**Matrix:** Water

**Prep Type:** Total/NA

**Analysis Batch:** 106657

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Chloride - DL	40		36.7		mg/L		10	20

## Method: 310.1 - Alkalinity

**Lab Sample ID:** MB 680-317049/5

**Client Sample ID:** Method Blank

**Matrix:** Water

**Prep Type:** Total/NA

**Analysis Batch:** 317049

Analyte	MB	MB	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Alkalinity	ND		5.0	5.0	mg/L			02/24/14 16:36	1

**Lab Sample ID:** LCS 680-317049/6

**Client Sample ID:** Lab Control Sample

**Matrix:** Water

**Prep Type:** Total/NA

**Analysis Batch:** 317049

Analyte	Spike	LCS	LCS	Unit	D	%Rec.	Limits
	Added	Result	Qualifier				
Alkalinity	250	223		mg/L		89	80 - 120

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# QC Sample Results

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

## Method: 310.1 - Alkalinity (Continued)

Lab Sample ID: LCSD 680-317049/32

Matrix: Water

Analysis Batch: 317049

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec.	RPD	Limit
		Result	Qualifier					
Alkalinity	250	241		mg/L		96	80 - 120	8

Lab Sample ID: 160-5553-1 DU

Matrix: Water

Analysis Batch: 317049

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Alkalinity	360		399		mg/L		11	30

# QC Association Summary

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

## GC/MS VOA

### Analysis Batch: 105525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5553-1	PZ-212-SD	Total/NA	Water	8260C	
160-5553-1 MS	PZ-212-SD	Total/NA	Water	8260C	
160-5553-1 MSD	PZ-212-SD	Total/NA	Water	8260C	
160-5553-2	TRIP BLANK	Total/NA	Water	8260C	
LCS 160-105525/4-A	Lab Control Sample	Total/NA	Water	8260C	
MB 160-105525/3-A	Method Blank	Total/NA	Water	8260C	

## Metals

### Prep Batch: 105783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5553-1	PZ-212-SD	Dissolved	Water	3010A	
160-5553-1	PZ-212-SD	Total/NA	Water	3010A	
160-5553-1 MS	PZ-212-SD	Dissolved	Water	3010A	
160-5553-1 MS	PZ-212-SD	Total/NA	Water	3010A	
160-5553-1 MSD	PZ-212-SD	Dissolved	Water	3010A	
160-5553-1 MSD	PZ-212-SD	Total/NA	Water	3010A	
LCS 160-105783/2-A	Lab Control Sample	Total/NA	Water	3010A	
MB 160-105783/1-A	Method Blank	Total/NA	Water	3010A	

### Analysis Batch: 106962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5553-1	PZ-212-SD	Dissolved	Water	6010C	105783
160-5553-1	PZ-212-SD	Total/NA	Water	6010C	105783
160-5553-1 MS	PZ-212-SD	Dissolved	Water	6010C	105783
160-5553-1 MS	PZ-212-SD	Total/NA	Water	6010C	105783
160-5553-1 MSD	PZ-212-SD	Dissolved	Water	6010C	105783
160-5553-1 MSD	PZ-212-SD	Total/NA	Water	6010C	105783
LCS 160-105783/2-A	Lab Control Sample	Total/NA	Water	6010C	105783
MB 160-105783/1-A	Method Blank	Total/NA	Water	6010C	105783

### Prep Batch: 107237

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5553-1	PZ-212-SD	Total/NA	Water	7470A	
160-5553-1 MS	PZ-212-SD	Total/NA	Water	7470A	
160-5553-1 MSD	PZ-212-SD	Total/NA	Water	7470A	
LCS 160-107237/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 160-107237/1-A	Method Blank	Total/NA	Water	7470A	

### Prep Batch: 107238

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5553-1	PZ-212-SD	Dissolved	Water	7470A	
160-5553-1 MS	PZ-212-SD	Dissolved	Water	7470A	
160-5553-1 MSD	PZ-212-SD	Dissolved	Water	7470A	
LCS 160-107238/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 160-107238/1-A	Method Blank	Total/NA	Water	7470A	

### Analysis Batch: 107270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5553-1	PZ-212-SD	Dissolved	Water	7470A	107238

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# QC Association Summary

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

## Metals (Continued)

### Analysis Batch: 107270 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5553-1	PZ-212-SD	Total/NA	Water	7470A	107237
160-5553-1 MS	PZ-212-SD	Dissolved	Water	7470A	107238
160-5553-1 MS	PZ-212-SD	Total/NA	Water	7470A	107237
160-5553-1 MSD	PZ-212-SD	Dissolved	Water	7470A	107238
160-5553-1 MSD	PZ-212-SD	Total/NA	Water	7470A	107237
LCS 160-107237/2-A	Lab Control Sample	Total/NA	Water	7470A	107237
LCS 160-107238/2-A	Lab Control Sample	Total/NA	Water	7470A	107238
MB 160-107237/1-A	Method Blank	Total/NA	Water	7470A	107237
MB 160-107238/1-A	Method Blank	Total/NA	Water	7470A	107238

## General Chemistry

### Analysis Batch: 106127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5553-1	PZ-212-SD	Total/NA	Water	300.0	
160-5553-1 - DL	PZ-212-SD	Total/NA	Water	300.0	
160-5553-1 DU	PZ-212-SD	Total/NA	Water	300.0	
160-5553-1 DU - DL	PZ-212-SD	Total/NA	Water	300.0	
160-5553-1 MS	PZ-212-SD	Total/NA	Water	300.0	
160-5553-1 MS - DL	PZ-212-SD	Total/NA	Water	300.0	
LCS 160-106127/5	Lab Control Sample	Total/NA	Water	300.0	
MB 160-106127/4	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 106657

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5553-1 - DL	PZ-212-SD	Total/NA	Water	300.0	
160-5553-1 DU - DL	PZ-212-SD	Total/NA	Water	300.0	
160-5553-1 MS - DL	PZ-212-SD	Total/NA	Water	300.0	
LCS 160-106657/11	Lab Control Sample	Total/NA	Water	300.0	
MB 160-106657/10	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 107224

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5553-1	PZ-212-SD	Total/NA	Water	300.0	
160-5553-1 DU	PZ-212-SD	Total/NA	Water	300.0	
160-5553-1 MS	PZ-212-SD	Total/NA	Water	300.0	
LCS 160-107224/10	Lab Control Sample	Total/NA	Water	300.0	
MB 160-107224/9	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 317049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5553-1	PZ-212-SD	Total/NA	Water	310.1	
160-5553-1 DU	PZ-212-SD	Total/NA	Water	310.1	
LCS 680-317049/6	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-317049/32	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-317049/5	Method Blank	Total/NA	Water	310.1	

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TestAmerica St. Louis

## Surrogate Summary

Client: Engineering Management Support, Inc.  
Project/Site: West Lake Landfill

TestAmerica Job ID: 160-5553-1

### Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		BFB (75-123)	DBFM (80-120)	12DCE (78-127)	TOL (80-120)
160-5553-1	PZ-212-SD	106	104	108	101
160-5553-1 MS	PZ-212-SD	96	107	109	100
160-5553-1 MSD	PZ-212-SD	92	99	102	97
160-5553-2	TRIP BLANK	104	98	100	97
LCS 160-105525/4-A	Lab Control Sample	95	98	98	99
MB 160-105525/3-A	Method Blank	108	100	103	104

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

12DCE = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)